

cryoHub: A customizable web interface for cryo-EM data processing

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Single particle cryo-EM has become a mainstream structural biology tool due to its ability to solve high-resolution structures of biomolecules. However, many software for data processing in cryo-EM do not provide a user-friendly modern GUI or any GUI at all. Besides, it is not easy to process data with multiple tools which belong to different software packages in one pipeline. These result in a lack of motivation for most users to try new data processing tools. Here, we presented a software, cryoHub, whose goal is to build a highly customizable web interface for existing cryo-EM data processing tools. For the users, cryoHub aims to provide a web-based GUI to run and manage projects and jobs. For the method developers, cryoHub is an "engine" to enable a web-based GUI with minimum efforts. With React as the frontend framework and Node.js for the backend, cryoHub provides a GUI for any command-line based tool simply by configuring each individual command to a YAML file. Moreover, the web-based GUI also enables us to integrate more advanced data visualization widgets. We believe that cryoHub has the potential to bring the users closer to more "third-party" data processing tools in cryo-EM.